

METHOD FOR CONSTRUCTING  
A METAL OXIDE SEMICONDUCTOR FIELD EFFECT TRANSISTOR

ABSTRACT OF THE DISCLOSURE

A semiconductor device (100) and a method for constructing a semiconductor device (100) are disclosed. A trench isolation structure (112) and an active region (110) are formed proximate an outer surface of a semiconductor layer (108). An epitaxial layer (111) is deposited outwardly from the trench isolation structure (112). A first insulator layer (116) and a second insulator layer (118) are grown proximate to the epitaxial layer (111). A gate stack (123) that includes portions of the first insulator layer (116 and the second insulator layer (118) is formed outwardly from the epitaxial layer (111). The gate stack (123) also includes a gate (122) with a narrow region (130) and a wide region (132) formed proximate the second insulator layer (118. The epitaxial layer (111) is heated to a temperature sufficient to allow for the epitaxial layer (111) to form a source/drain implant region (126) in the active region (110).